

Today's Topics:

Aviation NAVAIDS (long, lonter now)
Building A (Very) Low Cost Repeater
Cellular Tel Info Needed
DIRECTION FINDING EQUIPMENT (SuperDF)
Ham gear in hospitals
ICOM handheld batteries question
PL259 connector assembly

Date: 26 Oct 89 23:13:44 GMT

From: claris!sts!cohesive!ballard@apple.com (John Ballard)

Subject: Aviation NAVAIDS (long, lonter now)

>In article <8910260703.AA00903@ucbvax.Berkeley.EDU> MEHARP01@ULKYVM.BITNET
(Michael Harpe) writes:

>Actually, the VOR transmitter has a rotating beacon that rotates through
>360 degrees and somehow encodes the bearing into the signal. The receiver
>in the aircraft decodes this and indicates through the OBS (Omni-bearing
>selector) indicator how far left or right of the selected radial you are.

The VOR transmitter sends two pieces of information on a single carrier.
A reference signal of I believe 30Hz is amplitude modulated on the carrier,
and another AM signal in the 9000 Hz range is frequency modulated at
the same 30Hz. The phase angle of the 30Hz "FM" signal is varied as the
antenna array is electronically rotated. Thus the azimuth from the VOR
can be determined by comparing the phase angle of the two 30 Hz signals.
(This is from memory so the actual numbers may not be 30Hz and 9000Hz.)

>

>Actually, the ILS uses the same radios and indicators as a VOR, just that
>the ILS provides both glideslope and azimuth indications. It is in the
>same band as the ILS (the lower part of the nav frequencies are for
>landing aids, the upper part for VORS).

>

Actually the ILS consists of many components, the Localizer which provides
an artificial runway centerline and a Glideslope which provides an
artificial glideslope angle (similar to the VASI's for VFR). The marker
beacons indicate position along the ILS and the various light systems
provide for the transition to visual flight before touchdown. The
localizer component uses the same radio as the VOR but the method of
encoding the information is different. In fact the localizer and
glideslope transmitters use the same method of encoding the information.
The glideslope transmitter operates in the 300Mhz range, the VOR and
localizer operate in the 108 - 118Mhz range. The channel selected on
the VOR/localizer receiver determines the frequency used by the
glideslope receiver. (i.e. they are paired.) The marker beacon transmitters

are at 75Mhz single frequency but the Inner Marker, Middle Marker and Outer Marker signals are tone modulated differently and therefore will light different lights on the display.

>

>Not all VORs have DME capability. The DME in the aircraft sends a signal
>to the DME at the VOR, and then it replies back. By timing these signals
>the DME in the aircraft can give a distance reading, compute groundspeed,
>and give an estimated time of arrival. You are right, it is great for an
>approach.

>

A DME is usually associated with TACAN (Tactical Air Navigation). This is the military version of NAVAIDS. The VOR is then called a VORTAC. If the DME is simply colocated with a VOR then it is called a VOR-DME, these are indicated by different symbols on the charts. The DME works very much like a transponder but with the roles of interrogator and transponder reversed. These systems are single frequency(no channel selection to make) UHF pulse systems. In the case of a transponder, a device which allows the ground based radar systems to get a strong reply from an aircraft, the pulse train which is returned to the interrogator has information encoded in it. If the interrogator sends a Mode A interrogation the transponder replies with its SQUAWK a four octal digit number which is dialed into the front of the unit. If the interrogator send a Mode C interrogation then the transponder replies with its altitude as determined by an encoding altimeter. This information is usually presented to the controller in the data block which tracks an aircraft on the radar display. The SQUAWK codes are usually assigned by ATC and have specific meanings.

John KI6PS "I'd rather be flying"

Date: 26 Oct 89 20:48:14 GMT

From: rochester!rit!ccci632!cb@pt.cs.cmu.edu (Just another hired gun (n2hkd))

Subject: Building A (Very) Low Cost Repeater

Combining the ideas of the previous posters, a temporary repeater (mobile if need be) could be made using the cross band repeater features of today's fancy equipment.

I (and a few others) have made the cross band mod to my Kenwood 721.

It would be very easy to park two mobiles on a hill top about a few hundred feet apart and make a complete repeater system.

Utilized in this manner it(they) would be able to handle inputs from both bands and output to both bands. This seems like a great thing to do in an emergency when the AC power dies.

Also it would allow a whole county coverage with mulitple cross band repeaters with the users on one band and the interlink on the other.

Just a few ramblings (IMHO)...

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I volunteered for the rights in America, and now I'm losing them, AAARGHH
email: cb@cci632 or !rochester!kodak!n2hkd!curtis Fight for your RIGHTS!
Curtis Braun, N2HKD, Computronics, PO Box 1002 Fairport NY, 14450

Date: 26 Oct 89 21:49:21 GMT
From: att!cbnews1!hawk@uchvax.Berkeley.EDU (james.p.hawkins)
Subject: Cellular Tel Info Needed

In article <89292.202221REDELMAN@AUV.M.BITNET>, REDELMAN@AUV.M.BITNET (Richard B. Edelman) writes:

> Can anyone recommend a good >>technical<< book on how cellular telephone
> works?
>
> Thanks,
> Dick KH6RE
>
> REDELMAN@AUV.M.BITNET

There is a book entitled "Introducing Cellular Communications - the new mobile telephone system" by Stan Prentiss TAB Books

ISBN 0-8306-0682-3 (hrdcover)
ISBN 0-8306-1682-9 (paperback)

Don't be fooled by the word "Introducing". It's loaded with information!

Jim (WA2WHV)

Date: 27 Oct 89 02:58:00 GMT
From: csusac!mmsac!jim@ucdavis.ucdavis.edu (Jim Lips Earl)
Subject: DIRECTION FINDING EQUIPMENT (SuperDF)

Just how much does this SuperDF thingamabob cost? I love going on T-Hunts. My only experience is a few T-Hunts with a four-element UHF beam. A few buddies and I used to do this.

One of us would go "hide", and then the others would see who could find the "hidee" first. The "hidee" would continuously transmit, only unkeying for a few seconds to see if there were any messages for him.

I've found that a smaller yagi works better than a large (5 elements or more) one, because the larger ones have more "peaks" on the S-Meter. I don't recall what they are called. The opposite of nulls, I guess. Anyway, a three or four element beam worked great, along with a switchable attenuator, of course. (to reduce signal strength when you get close.)

I've seen those doppler units in Mobile Radio Tech., but I've yet to see a price. How much are we talking about here? The cheapest one I'd seen was a kit from Dick Smith. I don't even know if they make them anymore.

--Jim Earl (KB6KCP)

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Jim "Lips" Earl
KB6KCP

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The opinions stated herein are all mine.

Date: 27 Oct 89 00:46:33 GMT
From: fernwood!c3!tenney@decwrl.dec.com (Glenn Tenney)
Subject: Ham gear in hospitals

In article <4324@deimos.cis.ksu.edu> mac@harris.cis.ksu.edu (Myron A. Calhoun) writes:

>I've read a posting on some usegroup within the last few days saying
>that at least one hospital did NOT allow the use of ham radio gear
>from inside the hospital by either patients or visitors. However,
>QST once carried an article about hams using radios around Christmas
>time to let sick children talk to Santa Claus. Guess you'll have
>to ask your local hospital.

While I was in the hospital a couple of years ago I brought my HT with me. While I was on IV I found that hi power (5 wts) caused my IV unit to go into alarm mode and stop delivering. Low power worked ok, as did more distance.

This was with an electronic IV delivery system; 2m ht; and about a half wave of cable from sensor to IV unit.

Glenn AA6ER

Date: 26 Oct 89 16:52:48 GMT
From: fluke!ssc-vax!clark@beaver.cs.washington.edu (Roger Clark Swann)
Subject: ICOM handheld batteries question

My brother just bought one of the newer ICOM handheld units with the

battery pack that slips on the bottom of the radio, (sorry, don't remember the Model No.). ICOM sells about six different battery packs for various combinations of power output and operating time. The standard pack that comes with the radio has an output voltage of 13.8 V and is spec'd to generate 7 Watts output from the transmitter. My question is; what type battery technology are they using in these packs? This standard pack doesn't seem large enough to accommodate a sufficient number of NI-CAD type cells to yield 13.8 Volts, (unless they are very small ones). How about rechargeable Lithium cells? This type of battery has a much higher power density than NI-CAD. Anyone know the details?

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      Roger Swann           |      uucp:  uw-beaver!ssc-vax!clark
          @                 |
The Boeing Company         |      WB7VQX
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Date: 27 Oct 89 03:08:23 GMT
From: csusac!mmsac!jim@ucdavis.ucdavis.edu (Jim Lips Earl)
Subject: PL259 connector assembly

I've only got one additional comment to make about soldering on PL259 connectors; do NOT buy crummy Radio Shack connectors and expect to solder them on. Sure, you may say, "I use nothing but Radio Shack connectors, and I've never had a problem." Well, I've been involved in the assembly, installation, and operation of three or four different ham repeaters, and several commercial repeaters. After time, RS connectors have been known to develop "diode junctions" and be the source of much intermod. They'll cause you nothing but headaches over the long run. They may be fine for your mobile rig, but if you are going to use one at a repeater installation, you are asking for trouble. The answer? Spend a little more and buy a silver-plated teflon type connector. The solder flows right onto the case, and you don't need to "scrape" anything. Also, I highly recommend the use of double-shielded cable (such as RG-214). Again, it costs more, but it is easily worth the extra cost.

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      Jim "Lips" Earl           UUCP: sun!sacto!mmsac!jim
      KB6KCP                   INTERNET: mmsac!jim@sacto.West.Sun.COM
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The opinions stated herein are all mine.

End of INFO-HAMS Digest V89 Issue #811
